PENDING CLAIMS 1-52

1. (Previously Presented) A method for finding documents which relate to a portion of a temporal document, comprising:

    (a) in response to a signal of interest at a particular time during the temporal document, identifying a portion of the temporal document for which related documents are to be found;

    (b) selecting text associated with the portion of the temporal document identified;

    (c) weighting each term in the selected text by a function W(t) according to the time t at which the term occurs relative to the time at which the signal of interest occurs;

    (d) finding the related documents by use of information retrieval techniques as applied to the weighted terms.

2. (Original) The method of claim 1, wherein the temporal document is video or audio material.

3. (Original) The method of claim 2, wherein the video material is stored on a video server.

4. (Previously Presented) The method of claim 2, wherein the selected text is determined by application of speech recognition techniques to the audio component of the portion of the temporal document identified.

5. (Previously Presented) The method of claim 2, wherein the selected text is the closed-captioned text associated with the portion of the temporal document identified.

6. (Original) The method of claim 1, wherein the temporal document includes text.

7. (Previously Presented) The method of claim 6, wherein the document text appearing to the user varies with time and the selected text is that portion of the temporal document identified.

8. (Previously Presented) The method of claim 7, wherein the document text includes news bulletins, weather, sports scores or stock transaction or pricing information.

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9.   (Previously Presented) The method of claim 1, wherein $W(t)$ is equal for all times between t_1 before the signal of interest is given and t_2 before the signal of interest is given, and is zero for all other times.

10.   (Original) The method of claim 9, wherein t_1 is 2 seconds and t_2 is 30 seconds.

11.   (Previously Presented) The method of claim 1, wherein $W(t)$ is equal for all times between t_1 before the signal of interest is given and t_2 before the signal of interest is given, and decreases from t_1 until the time of the signal of interest, and increases from a time t_3 before the signal of interest is given to the time t_2, and is zero for all other times.

12.   (Original) The method of claim 11, wherein t_1 is 2 seconds, t_2 is 15 seconds, and t_3 is 30 seconds.

13.   (Previously Presented) The method of claim 11, wherein $W(t)$ decreases linearly from t_1 until the time of the signal of interest, and increases linearly from t_3 before the signal of interest is given to t_2.

14.   (Original) The method of claim 13, wherein t_1 is 2 seconds, t_2 is 15 seconds, and t_3 is 30 seconds.

15.   (Original) The method of claim 1, wherein

$$W(t) = W_{t1, t2}(t) \int_{k=0}^{t} (1 - \exp(-t_1)) * \exp(-t_1 k) * (1 - \exp(-t_2)) * \exp(-t_2(t-k)),$$

where t_1 and t_2 are constants.

16.   (Original) The method of claim 15, wherein $t_1 = .0001$ and $t_2 = .00025$.

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17.   (Previously Presented) The method of claim 16, wherein $W(t) = W_{t1, t2}(t)$ for times from 30 seconds before the signal of interest is given until the signal of interest is given, and $W(t) = 0$ for all other times.

18.   (Original) The method of claim 1, wherein the related documents are accessed through the Internet.

19.   (Original) The method of claim 18, further including selecting the related documents from among a collection of documents which may be accessed through the Internet, by utilizing databases comprising information about the collection.

20.   (Original) The method of claim 19, wherein the related documents are selected from the collection according to the scores achieved when evaluating documents in the collection according to a formula giving scores to documents depending upon the occurrence in the documents of terms which occur in text associated with the portion of the temporal document identified, where each term is weighted by a function $W(t)$ according to the time t at which the term occurs relative to the time at which the signal of interest occurs.

21.   (Original) The method of claim 20, wherein a predetermined number of documents, 1000, are selected.

22.   (Original) The method of claim 20, wherein a score S_D of a document D in the collection may be determined by crediting the document D, for each term T in the temporal portion of the document identified which occurs in the document D, with an amount proportional to $W(t)$, to Robertson's term frequency TF_{TD} and to IDF_T where

W(t) is the weight assigned to a term which occurs at time t relative to the signal of interest,

$TF_{TD} = N_{TD} / (N_{TD} + K_1 + K_2 * (L_D / L_0))$, and

N_{TD} is the number of times the term T occurs in document D,

L_D is the length of document D,

L_0 is the average length of a document in the collection of documents indexed,

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K$_1$ and K$_2$ are constants, and

IDF$_T$ = log ((N+K$_3$) / N$_T$) / log (N + K$_4$), and

N$_T$ is the number of documents containing the term T in the collection, and

N is the number of documents in the collection,

K$_3$ and K$_4$ are constants.

23. (Original) The method of claim 22, wherein K$_1$ is 0.5, K$_2$ is 1.5, K$_3$ is 0.5, and K$_4$ is 1.0.

24. (Original) The method of claim 20, wherein terms which occur in portions of the temporal document other than the portion identified are utilized in calculating the scores achieved when evaluating documents in the collection.

25. (Previously Presented) The method of claim 20, wherein evaluating documents in the collection includes accessing compressed document surrogates.

26. (Previously Presented) The method of claim 20, wherein related documents are selected from the collection by a server which is distinct from the server which receives the signal of interest.

27. (Previously Presented) A device for finding documents which relate to a portion of a temporal document, comprising:

(a) means for identifying a portion of the temporal document for which related documents are to be found, in response to a signal of interest at a particular time during the temporal document;

(b) means for selecting text associated with the portion of the temporal document identified;

(c) means for weighting each term in the selected text by a function W(t) according to the time t at which the term occurs relative to the time at which the signal of interest occurs;

(d) means for finding the related documents by use of information retrieval techniques as applied to the weighted terms.

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28. (Original) The device of claim 27, wherein the temporal document is video or audio material.

29. (Original) The device of claim 28, wherein the video material is stored on a video server.

30. (Previously Presented) The device of claim 28, wherein the selected text is determined by application of speech recognition techniques to the audio component of the portion of the temporal document identified.

31. (Previously Presented) The device of claim 28, wherein the selected text is the closed-captioned text associated with the portion of the temporal document identified.

32. (Original) The device of claim 27, wherein the temporal document includes text.

33. (Previously Presented) The device of claim 32, wherein the document text appearing to the user varies with time and the selected text is that portion of the temporal document identified.

34. (Previously Presented) The device of claim 33, wherein the document text includes news bulletins, weather, sports scores or stock transaction or pricing information.

35. (Previously Presented) The device of claim 27, wherein $W(t)$ is equal for all times between t_1 before the signal of interest is given and t_2 before the signal of interest is given, and is zero for all other times.

36. (Original) The device of claim 35, wherein t_1 is 2 seconds and t_2 is 30 seconds.

37. (Previously Presented) The device of claim 27, wherein $W(t)$ is equal for all times between t_1 before the signal of interest is given and t_2 before the signal of interest is given, and decreases from t_1 until the time of the signal of interest, and increases from a time t_3 before the signal of interest is given to the time t_2, and is zero for all other times.

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38.   (Original) The device of claim 37, wherein t_1 is 2 seconds, t_2 is 15 seconds, and t_3 is 30 seconds.

39.   (Previously Presented) The device of claim 37, wherein W(t) decreases linearly from t_1 until the time of the signal of interest, and increases linearly from t_3 before the signal of interest is given to t_2.

40.   (Original) The device of claim 39, wherein t_1 is 2 seconds, t_2 is 15 seconds, and t_3 is 30 seconds.

41.   (Original) The device of claim 27, wherein

$$W(t) = W_{t1, t2}(t) \int_{k=0}^{t} (1 - \exp(-t_1)) * \exp(-t_1\, k) * (1 - \exp(-t_2)) * \exp(-t_2(t-k)),$$

where t_1 and t_2 are constants.

42.   (Original) The device of claim 41, wherein $t_1 = .0001$ and $t_2 = .00025$.

43.   (Previously Presented) The device of claim 42, wherein $W(t) = W_{t1, t2}(t)$ for times from 30 seconds before the signal of interest is given until the signal of interest is given, and W(t) = 0 for all other times.

44.   (Original) The device of claim 27, wherein the related documents are accessed through the Internet.

45.   (Original) The device of claim 44, further including means for selecting the related documents from among a collection of documents which may be accessed through the Internet, by utilizing databases comprising information about the collection.

46.   (Original) The device of claim 45, wherein the related documents are selected from the collection according to the scores achieved when evaluating documents in the collection

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according to a formula giving scores to documents depending upon the occurrence in the documents of terms which occur in text associated with the portion of the temporal document identified, where each term is weighted by a function W(t) according to the time t at which the term occurs relative to the time at which the signal of interest occurs.

47.   (Original) The device of claim 46, wherein a predetermined number of documents, 1000, are selected.

48.   (Original) The device of claim 46, wherein a score S_D of a document D in the collection may be determined by crediting the document D, for each term T in the temporal portion of the document identified which occurs in the document D, with an amount proportional to W(t), to Robertson's term frequency TF_{TD} and to IDF_T where

W(t) is the weight assigned to a term which occurs at time t relative to the signal of interest,

$TF_{TD} = N_{TD} / (N_{TD} + K_1 + K_2 * (L_D / L_0))$, and

N_{TD} is the number of times the term T occurs in document D,

L_D is the length of document D,

L_0 is the average length of a document in the collection of documents indexed,

K_1 and K_2 are constants, and

$IDF_T = \log ((N+K_3) / N_T) / \log (N + K_4)$, and

N_T is the number of documents containing the term T in the collection, and

N is the number of documents in the collection,

K_3 and K_4 are constants.

49.   (Original) The device of claim 48, wherein K_1 is 0.5, K_2 is 1.5, K_3 is 0.5, and K_4 is 1.0.

50.   (Original) The device of claim 46, wherein terms which occur in portions of the temporal document other than the portion identified are utilized in calculating the scores achieved when evaluating documents in the collection.

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51.   (Previously Presented) The device of claim 46, wherein evaluating documents in the collection includes accessing compressed document surrogates.

52.   (Previously Presented) The device of claim 46, wherein related documents are selected from the collection by a server which is distinct from the server which receives the signal of interest.

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